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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,770	01/24/2002	Gottfried Ferber	WMP-EUP-008	4597

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EXAMINER	
TRAN, LONG K	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,770	FERBER ET AL.	
	Examiner	Art Unit	
	Long K. Tran	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *20 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *12 and 13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims **1 – 11** in Paper No. **8** is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims **1, 2, 3** and **9** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Stoisiek et al. (US Patent No. 6,310,401).

Regarding claim **1**, in figures 1 – 3, Stoisiek et al. illustrate a semiconductor module comprising: a substrate body having an insulating ceramic layer 1 with a top side 21, and a metal layer 2 fixedly joined to the top side of the insulating ceramic layer; at least one connection conductor 13 joint to the metal layer 2. Stoisiek et al. do not teach connection connector joined to the metal layer by welding. However this limitation is taken to be a product by process limitation, it is the patentability product and not of recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly

different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. A product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See In re Fessman, 180 USPQ 324,326(CCPA 1974); In re Marosi et al., 218 USPQ 289,292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process " claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claim in "product by process" claim or not.

Regarding claim **2**, Stoisiek et al. disclose the insulating ceramic layer of the substrate body is formed of Al_2O_3 (col. 3, lines 27 – 29).

Regarding claim **3**, Stoisiek et al. disclose the metal layer is made of copper (col. 3, lines 29 – 31).

Regarding claim **9**, Stoisiek et al. disclose the connection conductor has a foot which is bent at right angles (fig. 2)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim **8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Stoisiek et al. (US Patent No. 6,310,401) in view of Schulz-Harder (US Patent No. 6,297,469).

Stoisiek et al. disclose the claimed invention in claim 1 but do not explicitly teach a coating disposed on the metal layer as in claim 8. It is known and also taught by Schulz-Harder (col. 1, lines 10 +; col.3, lines 27 – 36) that in the DCB process for producing a metal ceramic substrate, another metal layer being produced on the structured first metal layer by electroless chemical deposition; this coating layer 8 (fig.1) consists of nickel, tin or gold. It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce a metal-ceramic substrate by the conventional DCB process in Stoisiek et al's device.

5. Claims **10** and **11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoisiek et al. (US Patent No. 6,310,401) in view of Crowley et al. (US Patent No. 6,521,982).

Regarding claim **10**, Stoisiek et al. disclose the claimed invention in claim 1 but do not explicitly teach the foot of connection connector has at least one slot formed therein as in claim 9.

Crowley et al. disclose a foot of connection connector 132 (figs. 5 and 6) has slot 144.

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to make a slot at the foot of the connection connector as taught by Crowley et al. into Stoisiek et al. device in order to augment the resistance of the connection to shear tresses (Crowley et al. Col. 6, line 16 – 21).

Regarding claim **11**, Stoisiek et al. disclose the claimed invention in claims 1 and 9 but do not explicitly teach the slot in claim 9 having width that is approximately equal to thickness of the foot as in claim 11.

Figure 6 in Crowley et al. illustrates slot 144 is approximately equal to thickness of the foot part of connection connector 132.

It would have been an obvious matter of design choice to make a slot having width equal to the thickness of the foot part of the connection connector as taught by Crowley into Stoisiek et al. device, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Furthermore, since applicant has not disclosed that the width of slot solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with foot part of Stoisiek et al. device.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **1, 2, 3, 4, 5, 6** and **7** are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choi (US Patent. No. 6,404,065).

Regarding claim **1**, in figure 2, Choi illustrates a semiconductor module comprising: a substrate body 28 having an insulating ceramic layer 32 with a top side, and a metal layer 30 fixedly joined to the top side of the insulating ceramic layer; at least one connection conductor 38 joint to the metal layer 30. Choi does not teach connection connector joined to the metal layer by welding. However this limitation is taken to be a product by process limitation, it is the patentability product and not of recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. A product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See In re Fessman, 180 USPQ 324,326(CCPA 1974); In re Marosi et al., 218 USPQ 289,292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964,966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process " claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claim in "product by process" claim or not.

Regarding claim **2**, Choi discloses the insulating ceramic layer of the substrate body is formed of Al_2O_3 (col. 3, lines 39 – 48).

Regarding claim **3**, Choi discloses the metal layer is made of copper (col. 3, lines 30 – 34).

Regarding claim **4**, Choi discloses the substrate body is a direct copper bonded (DCB) substrate (col. 3, lines 30 – 34).

Regarding claims **5** and **6**, Choi discloses the insulating ceramic layer contains AIN or BeO (col. 3, lines 41 – 44).

Regarding claim **7**, Choi discloses the connector 28 is one of a plurality of connection conductors each formed of copper (col.4, lines 16 and 17). It is noted that connector 28 is part of copper lead frame 54 as illustrated in figure 4.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long K. Tran whose telephone number is 703-305-5482. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7466 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

Long Tran LKT

March 19, 2003

HOAI HO
PRIMARY EXAMINER